View Full Version : Making your own detcord

steve smith March 13th, 2004, 05:22 AM

Anyone made a good quality length of this stuff? I am talking about a length that has the consistency, and the quality of Commercial grade. I don't plan on making flame balls, i plan on using the cord for measurement purposes. More specifically, for the Dautriche method IIRC.

Thank you for ALL, and ANY ideas out there.

Steve

vulture March 13th, 2004, 10:41 AM

Being the one to blame for the creation of this thread, I might aswell help out. ;)

The main problem would be to get a consistent density over the whole length of the cord. Pressing is going to be tricky and not very effective, possibly dangerous too.

I would try filling the tube with a supersaturated slurry of your explosive and allowing the solvent to evaporate. The principle behind this would be that crystallization from a solvent should produce crystals of uniform density.

EP March 13th, 2004, 11:33 AM

One idea I've heard (but not tried personally) is to use MEKP. Because it is a liquid, you will have a consistent density throughout the tubing as long as it's filled all the way so the MEKP doesn't just pour around and drain out of the high points when it's set up.

steve smith March 13th, 2004, 12:02 PM

Commericailly made detcord is wrapped with a fiberous material. I have thought about using some sort of plastic for the casign, but the cord would not dry out, nor could you get the proper lengths.

Anyone ever made blackmatch before? How abotu making a blackmatch like machine, which feeds cotton through a slurry mix. The amount of mix can be regulated by pulling the sting through a small pipe, takign off excess, fillign in holes. Before this cotton dries out, maybe pull the string through some sort fiberous (either man made or natural) slieve. Let dry, then pull the whole shebange through a plastic, HDPE like pipe. All of which are eaasily found. Cheap and easy.

Military Det cord is made like this:
Polyethylene Coating
Rayon layer
Asphalt Layer
Seamless Cotton Tube
Explosive (PETN)

I would like to try and HMTD mix, one could alyways leae the cord inthe freezer/fridge for storage. I would be worried about cracking/rubbing/initiatio, in that order

Steve

s25 March 13th, 2004, 12:35 PM

I have heard of putting a explosive such as AP into shoe lacer and that was supposed to be okay but i cannot say i have tryed it myself.And if you made the AP moist with acetone and or another fast evaporating solvent you could pack it in a little but i believe this would cause the detcord to expolode rather violently i would though

Jetex Kid March 13th, 2004, 01:23 PM

The Dautriche method requires that the detonation velocity of one explosive be known, and this depends on diameter, temperature, density and particle size.

(Though this is technically true, it�s largely irrelevant here because fluffy PETN will propagate at 0.4 mm (.016 inch) diameter, and even in diameters as small as det cord, PETN detonation will approach its maximum possible rate.)

Still, there exist distinct detonation regimes, and in the case of nitroglycerin there are at least three distinct, stable, Vd�s, depending on initiation conditions. The fact that PETN detonates does not necessarily imply a particular velocity, as far as I know.

Actually Steve, since you like computers, I�m trying to sell you a data acquisition card. For about $100 you can measure independently of diameter, temperature, density and particle size, to determine the true Dv of the explosive in question. (Which of course depends on diameter, temperature, density and particle size).

Actually, if you understand computers a lot better than I, you could probably write a program for any megahertz-frequency i/o card.

Microtek March 13th, 2004, 01:28 PM

I have considered several principles for making a detonating fuse, some of which were unpractical, but most of which were workable:

1)
-Purchase some cotton yarn (sometimes used for sowing up stuffed food). It should be fairly light and not too tightly spun.
-Nitrate it as you would cotton wool and wash thoroughly.
-Use it to suck up NG or EGDN, optionally with dissolved MHN, and warm it up to make it gelatinize.
-It can now be wrapped in tape or other protective coating such as liquid latex if desired.

2)
Liquid explosive in a hose.
There is a patent about using sensitized NM in 3 mm diameter hoses. The NM can be gelled to prevent spills when cutting the cord. The NM can be sensitized with powdered balsa wood.
NG could obviously also be used, but in thin hoses there would be the risk of low order detonations. NM does not exhibit this behaviour. I was thinking that a mix of NM and NG might be a good compromise between sensitivity, safety and performance.

3)
Extruded PBX.
-An ordinary plastique based on PETN or RDX with PIB(self-amalgamating tape) or blue-tack binder is made by dissolving PIB/blue-tack binder and oil in gasoline and mixing in the PETN.
- Before the plastique is completely dry, it is packed into a syringe, the piston is rammed in, and the plastique is extruded in a long thin cord.
- It will be very fragile until the solvent has completely evaporated so it should be left alone.
- Once dry it should be wrapped in tape or coated with liquid latex for strength. (I'v tested this and it works beautifully, though it requires quite a powerful detonator)

This can also be done with other types of binder, such as silicone diluted with ethyl acetate, or liquid latex can be used directly. If latex is used as a binder, a little lubricant such as oil or maybe glycerine (or soap) should be added or the PBX will stick to the syringe.

4)
Solvent free slurry.
- The oven is set at 50 C and a syringe and a length of thin hose is placed inside.
- MHN is extremely soluble in warm NG, EGDN or NM (especially NM, but the nitric esters may be better for this purpose), so one of them, lets say NG, is warmed to ca 50 C, and as much MHN as will dissolve is added. It may be better to add even more, so that an actual slurry is made.
- The slurry or solution is sucked up into the warm syringe and extruded into the warm hose. Then, the hose is removed from the oven and cooled.
This makes much of the MHN precipitate from the solution, forming a plastic mass along with the rest of the solution.

The problem with these is that they are so very loud. I have considered using the extruded PBX method with lesser explosives but haven't really had any successes yet.

There is one more that I have considered (from a patent):
Explosive gas mixtures.
- Two syringes (or other containers) are filled with gas; one with oxygen (from H_2O_2 decomposition) and one with a reducing gas such as C_2H_2, H_2, propane, butane, etc.
- The syringes contain stochiometric amounts of oxygen and reducer, and are connected to a mixing chamber which is in turn connected to a thin hose.
- This hose is connected to ignition elements of one or more detonators, and of course, there must be a nozzle for venting the air which occupied the hose before the gas mixture.

This is a low energy binary system, but does have some complications such as special detonators.

freaky_frank March 14th, 2004, 09:03 AM

Why not just use a tube like they use in aquariums(sp?), (you know the things where fishes swim in) normally air goes threw them, from a air pump...those tubes are not too thick, and still have a quite big ID, so it isn't to dificult to pour in your explosive...
and if you just pour it in there, with a funnel out of paper or so, you don't pack it.
And it will have a uniform denisty.

SantasL.Helper March 14th, 2004, 03:46 PM

Those are silicone tubing right? Bit expensive, i've only used hollow shoelaises for the use of a very amaturistic though funny detcord. Just slid a funnel in the cut open lais and loaded it up with X (anything crystalline and not very sensitive). Dunno if that works with HE's though but with primary's it does (dangerous though, to kned a highly sensitive X down a lais)... Anyone knows if filling up a shoelais with HE works for a detcord, as in, being able to detonate it?

freaky_frank March 14th, 2004, 04:29 PM

Where would you find hollow shoelaises...
You beginner....?

MightyQuinn� March 14th, 2004, 04:41 PM

I can imagine making detcord with a less viscous HE mixture and filling a tube like my Wagner Power Painter does with paint. It uses a simple diaphragm pump to push paint down a tube.

andyboy March 14th, 2004, 07:55 PM

Well, this is not recommended but it's how I did it:

http://andyboys.web.surftown.se/detcord.html

I used catheter-tubing which might be hard to find for anyone not working in a hospital, but it ought to be possible to find it in most hardware-stores. The AP was not packed, it was just filled into the tubing using a funnel.

steve smith March 14th, 2004, 10:18 PM

Can a few people please go over the The Dautriche method again... I am drawing a blank as to some of the details.

I am worried about the filler used. It seems to me that the only way of making improvised det cord would be in set lengths. Otherwise, trying to cut the cord, so to speak, could become quite hazardous.

So far, i like my idea the best. (not because it is my idea) Dropping cotton string into an HE bath, then taking the string and pulling it through a long length of tubing. I *really* like the catherter idea. Small, flexible. Maybe even cheap..?? or even that aquarium tubing.

What would be the best comp for such a device. Best, i would like to be able to cut it, but i dunno if i trust that idea. Unless it is actual PETN.

I do like the idea of maybe taking that catherter tubing and filling it with a syring.

Steve

+++++++++++++

See the above highlighted name? Do this again and you'll be banned. "Signing" a post with your username is redundant stupidity. :rolleyes:

NBK

A-BOMB March 15th, 2004, 12:42 AM

I personly make a puddy about the consisenty of modeling clay and I roll it out with a rolling pin into about a .5" thick layer by however big. I then use a piano wire frame to cut it into a bunch of .5"x.5" square lengths of explosive, I then take them and lay them end to end and I kneed the ends together to make longer lengths, and I coat it with a mix of plastics and resins. While the mix is still wet I take a roll of cotton gause and I lay it over it and roll it into the mix and then another layer of cotton. Then some paint, I like it in the end because the end produce is somewhat square.

grendel23 March 15th, 2004, 12:52 AM

The whole idea behind the Dautriche method is to compare the VOD of an unknown substance with the known VOD of det cord.
If you make your own det cord, how will you know what it's VOD is?
Making good improvised det cord is an admirable goal, but if you can measure the VOD of the cord, you can measure the VOD of your material directly.
There is a thread on this topic, http://www.roguesci.org/theforum/showthread.php?t=3522. Electronic timing is definitely the way to go.
There is discussion in that thread as to whether a wire embedded in the charge would be a suitable trigger for a timer, but as it shows on page 312 of the 3rd volume of Fedoroff, the Mettegang chronograph uses this method of triggering and therefore it should be useable.
High school level electronics skill is all that would be needed to implement a simple timer that would be capable of accurate VOD measurements.
If you want to know more about the Dautriche method, download "The Chemistry of Powder and Explosives", or Fedoroff vol 3 (harder to find).

vulture March 15th, 2004, 10:58 AM

Dropping cotton string into an HE bath, then taking the string and pulling it through a long length of tubing.

This is going to seriously affect VoD because of the change in OB and the rather shitty contact between explosive grains.

Jetex Kid March 15th, 2004, 11:15 AM

Steve, like most salesmen, I�m a little weak on the technical details. But I�ll say this: if you Google on �data acquisition,� you�ll get about 2.1 million hits. :) Add the term �i/o� and the hits go down to 100,000. :rolleyes:

I�m sure that any old oscilloscope could be an accurate timer, too.

Unless you are using ebw detonators, do not initiate using a machine. Initiate independently and then time the interval between broken wires.

Boomer March 15th, 2004, 12:50 PM

I built a timer to measure VoD, with two thin wires going through the charge at a known distance. The charge is supposed to break the wires, and the processor counts the time between the breaks and displays it on an LCD. I tested the device with a much slower frequency, cutting both wires manually, and it worked.

I got a nasty surprise: With a column of less than 3” length, you always get a counter reading of 1, meaning 20000+ m/s, for all explosives including BP! The reason probably is that the hot gasses stay behind the detonation wave, as they move much slower. They are conductive, thus shorting wire No1 until wire No2 is reached by the shock wave too.

I re-programmed the chip to make it count how long after the first wire the second is shorted (not cut), using two insulated (coil) wires in each probe that are shorted by the hot gases. This new method will be tested soon, I'll keep you informed.

SantasL.Helper March 16th, 2004, 01:33 PM

You can find hollow shoe laises at a shoe repair shop. Get those big flat skate shoe laises, if you press the sides you will notice they're hollow.

Filling em up with secundairy X is not a problem, you'd better wrap it up with tape to be sure it doesn't leak...

vurr March 16th, 2004, 02:11 PM

maybe it is possible to use wave propagation in water(known speed):shock absorbing wall with two holes,explosive stuff (in tube ?) at one side,plenty of free water at other side.
after explosion shockwaves goes also through holes in wall and should give interference picture on other side which can be captured by camera...
then comes hard part:math

vBulletin® v3.8.2, Copyright ©2000-2009, Jelsoft Enterprises Ltd.